

Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) Apparatus for compressing tissue on a support during a medical imaging process to generate a medical image, said apparatus comprising:

a tissue compression membrane that compresses the tissue between the membrane and the support during the medical imaging process and minimizes image distortion in the medical image; and

a plurality of tensioning apparatuses coupled to said membrane to apply a tensile force to said membrane to place said membrane in a taut condition during the medical imaging process;

wherein said tensioning apparatuses each comprises an inflatable bladder.

2. (Original) The apparatus of claim 1 further comprising a support frame configured to support at least one end of said compression membrane.

3. (Original) The apparatus of claim 2 wherein said support frame further supports said tensioning apparatus.

4. (Original) The apparatus of claim 2 wherein said tensioning apparatus comprises at least one tensioning device situated on one side of the frame, and configured to apply tensile force along an axis perpendicular to said frame side.

5. (Canceled)

6. (Previously presented) The apparatus of claim 4 wherein said inflatable bladder is at least in part responsive to one of the following commands for applying the tensile force: a hydraulic command and a pneumatic command.

7. (Original) The apparatus of claim 1 wherein said compression membrane has a thickness not exceeding 0.5 mm.

8. (Original) The apparatus of claim 1 wherein said compression membrane comprises a polymeric material.

9. (Original) The apparatus of claim 1 wherein said tissue comprises breast tissue and said imaging process is selected from the group consisting of ultrasound and X-ray mammography.

10. (Original) The apparatus of claim 1 wherein said tensioning apparatus comprises means for applying a respective tensile force to said compression membrane along a pair of mutually orthogonal axes that define a plane at least over a portion of said compression membrane.

11. (Previously presented) Apparatus for compressing tissue on a support during a medical imaging process to generate a medical image, the apparatus comprising:

- a tissue compression membrane that compresses the tissue between the membrane and the support during the medical imaging process and minimizes image distortion in the medical image; and

- a plurality of tensioning apparatuses coupled to the membrane to apply a tensile force to the membrane to place the membrane in a taut condition during the medical imaging process;

- wherein the tensioning apparatuses each comprises an inflatable bladder;

wherein the tensioning apparatus comprises means for applying a respective tensile force to the compression membrane along a pair of mutually orthogonal axes that define a plane at least over a portion of the compression membrane; and

wherein the means for applying the tensile force along the orthogonal axes include means for independently adjusting the magnitude of the tensile force along each of the orthogonal axes, thus allowing to compensate for variation in size and/or shape of the tissue to be compressed.

12. (Previously presented) A method for compressing tissue to be scanned for medical imaging to generate a medical image, said method comprising:

providing a tissue compression membrane that minimizes image distortion in the medical image;

providing a plurality of inflatable bladders; and

applying a tensile force to said membrane to place said membrane in a taut condition during an imaging process;

wherein said tensile force is applied at least in part by said inflatable bladders, and wherein said inflatable bladders can be individually adjusted to selectively apply differing tensile forces to said compression membrane in two or more directions.

13. (Original) The method of claim 12 wherein said applying of the tensile force to the compression membrane comprises applying a respective tensile force to said compression membrane along a pair of mutually orthogonal axes that define a plane at least over a portion of said compression membrane.

14. (Original) The method of claim 13 wherein the applying of a respective tensile force along said orthogonal axes further comprises independently adjusting the magnitude of the tensile force along each of said orthogonal axes, thus allowing to compensate for variation in size and/or shape of the tissue to be compressed.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Previously presented) Medical imaging equipment for imaging tissue comprising:
apparatus for compressing the tissue during a medical imaging process to
generate a medical image, the apparatus comprising:

a tissue compression membrane that minimizes image distortion in the
medical image; and

a plurality of tensioning apparatuses coupled to the membrane to apply
a tensile force to the membrane to place the membrane in a taut condition
during an imaging process;

wherein each of the tensioning apparatus comprises an inflatable
bladder responsive to one of the following commands for applying the tensile
force: a hydraulic command and a pneumatic command;

wherein at least one of the tensioning apparatus comprises at least two
tensioning devices arranged on a support frame to apply a respective tensile
force to the compression membrane along a pair of mutually orthogonal axes;
and

wherein each of the tensioning devices include a respective tension
adjuster for independently adjusting the magnitude of the tensile force along
each of the orthogonal axes, thus allowing to compensate for variation in size
and/or shape of the tissue to be compressed.

19. (Previously presented) The medical imaging equipment of claim 17 wherein each
tensioning device comprises a movable tension plate responsive to a mechanical command for
applying the tensile force.

20. (Previously presented) The medical imaging equipment of claim 17 wherein each tensioning apparatus comprises an inflatable bladder ~~is~~-responsive to a hydraulic command for applying the tensile force.

21. (Canceled)

22. (Canceled)